

INTEGRATED SUPPORT ENVIRONMENT (ISE) ELEMENT USERS GUIDE

(Deliverable 0424)
(Revision 1)

Infrastructure Overview

Volume 1 of 6

March 11, 1998

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1. INTRODUCTION

1.1 Identification of Document

This is the Element Users Guide Document for the Integrated Support Environment (ISE). The ISE is being established under the IV&V Infrastructure and Tools task (Work Element 2) and will provide the tools and infrastructure necessary for the performance of the Earth Observing System Data and Information System (EOSDIS) Independent Verification and Validation (IV&V) contract.

1.2 Purpose and Scope of Document

The ISE is primarily comprised of Commercial Off-The-Shelf (COTS) products. However, the establishment of the ISE also includes developed tools. This document identifies the users guide information associated with tools which are being developed for incorporation into the ISE. The user interface information captured within this document provides the information necessary to understand the purpose and functionality provided by each tool interface. This document is intended to serve as an aid to tool users.

Note that no users guide information is included within this document for the World Wide Web (WWW) based homepage applications. The EOSDIS IV&V, EOSDIS Ground System (EGS) Integration and Test, and the IADB homepages are extremely intuitive and only require familiarity with one of the many WWW browsers (i.e. Netscape, Internet Explorer, etc.).

1.3 Document Status and Schedule

This is the first revision of the ISE Element Users Guide Document. An initial DRAFT of the document was released on 30 November 1995 and a formal release occurred on 30 September 1997. This release of the user guide document includes information for the following ISE development items:

1. Automated Requirements Database (ARDB)
2. Project Issue Tracking System (PITS)
3. Interface Analysis Database (IADB)
4. Test Management Database (TMDB)
5. RTM-to-ISE Utility

This document will be updated as necessary to accurately reflect the focus of the user interfaces for developed tools within the ISE. The initial release of the ISE tools was completed in advance of the projected February 1996 target date. It is anticipated that the ISE will evolve as additional IV&V needs are defined during the span of the ten year project.

1.4 Documentation Overview and Organization

This document presents users guide information which is being maintained for ISE development items. At a minimum, the users guide information maintained includes the Graphical User Interface (GUI) hierarchy for each tool and a description of each tool interface screen. In addition to the users guide information, this document contains an overview of the design approach, some general information on the types of applications being developed, and a brief description of the development tools and environment.

Since this document only addresses those elements of the ISE which are associated with new development, a complete understanding of the ISE can not be garnered from the review of this document. Refer to the ISE System Architecture Document to obtain a more complete understanding of the functionality to be exhibited by the ISE infrastructure.

Section 1 establishes the context of the document through an *introduction*. This identifies the document, the scope and purpose of the document, and the status of the document.

Section 2 lists the *related documentation* including parent documents and applicable documents.

Section 3 describes the *design approach and tradeoffs*. This section provides an overview of development initiatives, development tools, and the rapid prototyping approach that is being followed.

Section 4 details the *users guide information* associated with ISE development items.

Section 5 contains a list of *abbreviations and acronyms* used in this document.

Section 6 contains a *glossary* of terms used in this document.

Section 7 contains *notes* pertaining to material in this document.

Section 8 identifies the *appendices* included in this document.

2. RELATED DOCUMENTATION

2.1 Parent Documents

The following documents are parents to this document:

1. "Earth Observing System (EOS) Performance Assurance Requirements (PAR) for the Independent Verification and Validation (IV&V) of the EOS Data and Information System (EOSDIS)", GSFC 420-05-05, dated March 23, 1993.
2. "Statement of Work for the Independent Verification and Validation (IV&V) of the EOS Data and Information System and Key EOS Ground System Interfaces", dated April 19, 1993.
3. "EOSDIS IV&V Task 4 IV&V Infrastructure and Tool Development Task Statement of Work", dated 19 October 1994.
4. "EOSDIS IV&V Task 4B IV&V Infrastructure and Tool Development Task Statement of Work", dated 19 June 1995.

2.2 Applicable Documents

The following documents are referenced herein and are directly applicable to this volume:

1. ISE System Requirements Document (Deliverable 0404) dated 28 October 1994.
2. ISE System Architecture Document (Deliverable 0405) dated 30 January 1995.
3. ISE Element Requirements Document (Deliverable 0408) dated 14 April 1995.
4. ISE Element Software Design (Deliverable 0409) dated 14 July 1995.
5. "NASA Software Documentation Standard Software Engineering Program" NASA-STD-2100-91, dated July 29, 1991

3. DESIGN APPROACH AND TRADEOFFS

3.1 Rapid Prototyping Approach

In the rapid prototyping approach, the most important and critical software requirements are defined to the extent that current knowledge and experience permits for the incremental capabilities required. After a core set of requirements are documented for an incremental capability, a “quick” object oriented design addressing the current set of requirements is prepared, and a rapid prototype is developed and tested. The purpose of the prototype is to gain information about the requirements and confidence in the correctness of the prototype design. Design characteristics such as efficiency, maintainability, capacity, and adaptability are also considered in the prototype since the intent is to extend the prototype to fulfill capabilities required by the system. The developed prototype is evaluated by the end user to accumulate comments that result in the refinement of the documented requirements, design, and the prototype itself. This rapid prototyping approach is iterative and is repeated for each incremental tool capability.

3.2 ISE Development Infrastructure

The ISE system architecture reflects a networked heterogeneous environment incorporating several COTS products and a few developed or customized applications. The planned ISE architecture has been detailed in the ISE System Architecture Document dated 30 January 1995. The documented architecture depicts an environment which is flexible and supportive for incrementally adding tools as new needs and requirements are levied against the ISE. Exhibit 3.1-1 reflects the network/computational infrastructure of the ISE. Note that the infrastructure depicted also serves as the computational infrastructure necessary to support ISE development.

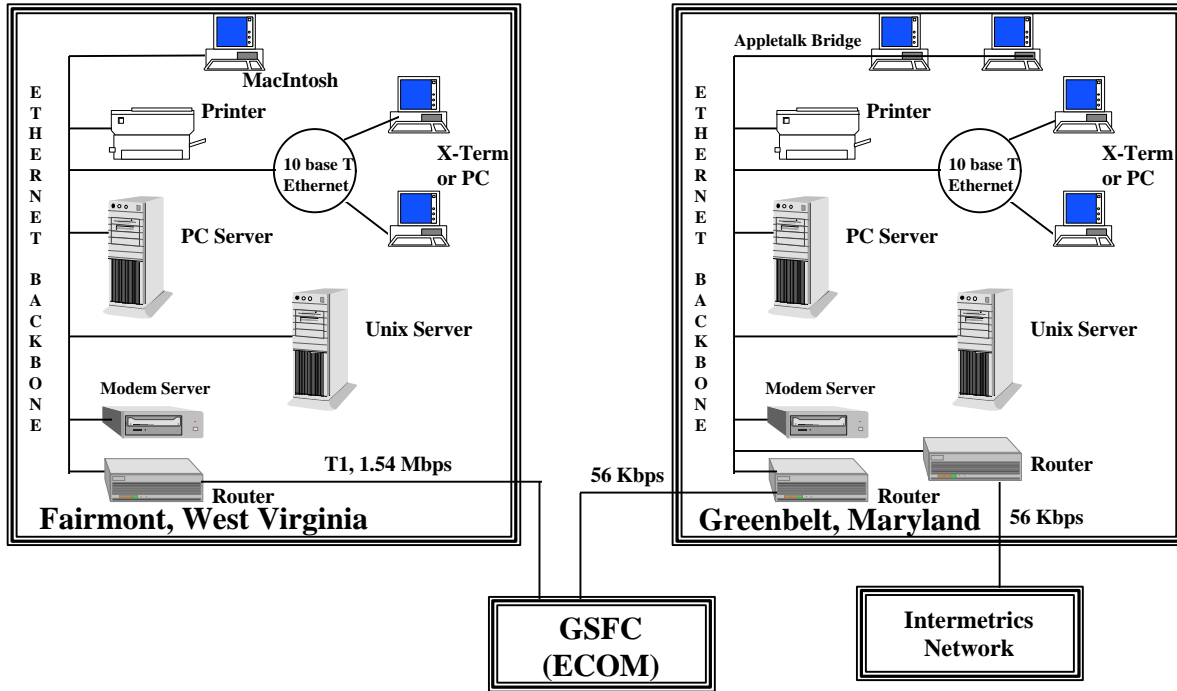


Exhibit 3.1-1 Network/Computational Infrastructure

In addition to the network/computational infrastructure, a high level understanding of the development infrastructure can be garnered from Exhibit 3.1-2, ISE Development Infrastructure. This exhibit depicts many of the COTS tools which are a part of the ISE as well as the tools necessary to satisfy tool development undertakings.

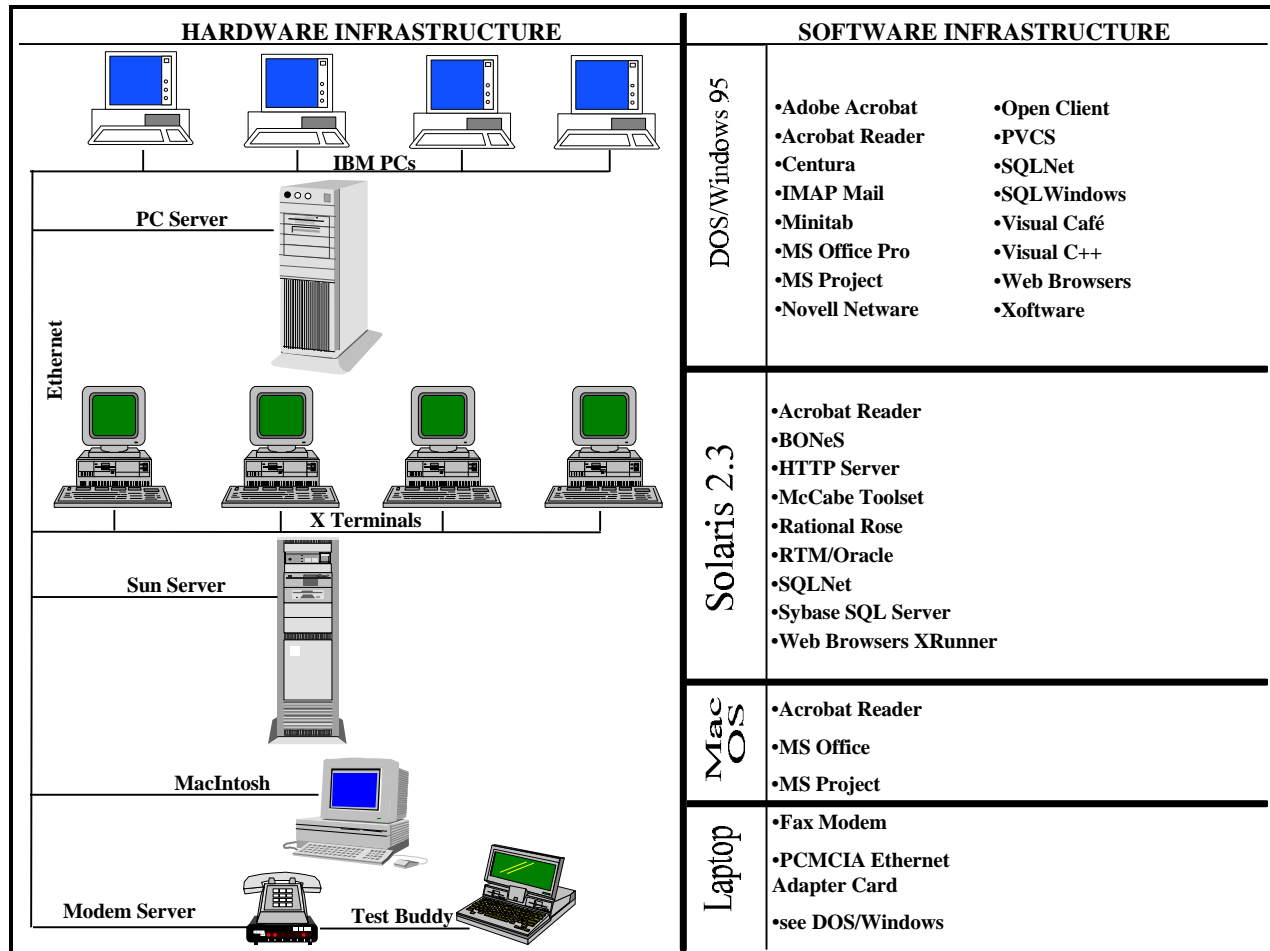


Exhibit 3.1-2 ISE Development Infrastructure

For additional information concerning the ISE network/computational infrastructure and ISE Toolbox tools, refer to sections 5.2.1 and 5.2.2 of the ISE System Architecture Document dated 30 January 1995.

3.3 Tool Development Overview

Based upon identified EOSDIS IV&V tool needs, development activities were initiated where no COTS solution existed that satisfied levied requirements. These development initiatives are limited to database and homepage applications. These types of applications yield benefits that automate labor intensive processing, provide support for working at geographically dispersed sites, and promote sharing of information. As a result of these benefits, IV&V activities yield higher quality products in a more timely and efficient manner.

3.3.1 Client/Server Development

The development of three client/server applications are targeted to support existing EOSDIS IV&V activities. These applications include:

- the Automated Requirements Database (ARDB),
- the Project Issue Tracking System (PITS),
- the Test Management Database (TMDb), and
- the RTM-to-ISE Utility.

Refer to section 4 of this document for detailed descriptions of these applications and the associated users guide information. These applications are being developed using the Gupta SQLWindows client/server development tool. SQLWindows is a Rapid Application Development (RAD) tool which allows for rapid prototyping of the graphical user interface (GUI) using a GUI builder. Once the interface is constructed, functionality is provided to associate database data from any number of COTS database management systems with the painted interfaces.

Application code is then generated by SQLWindows to build the client/server application which can be deployed at various remote sites on as many PCs as desired without run-time fees. The server databases, which include RTM/Oracle and Sybase SQL Server, will reside at the location where the majority of access is expected so that client/server application performance is maximized. During development, the prototype applications will communicate with databases located at the NASA/WVU Software IV&V Facility located in Fairmont, WV.

3.3.2 Microsoft Access Development

One Microsoft Access application is maintained as a part of the ISE. The Interface Analysis Database (IADB) was developed in support of interface analysis activities so that some level of automation could be achieved in performing consistency and completeness analysis. The IADB application is LAN limited due to performance limitations with running a Microsoft Access application over the WAN or via dial-in. Data (e.g. reports) which must be shared with the external user community is uploaded to the IADB homepage for WWW viewing. User interface information for the IADB is documented in section 4 of this document.

4. ABBREVIATIONS AND ACRONYMS

Below is a list of the abbreviations and acronyms used in this document.

ARDB	-	Automated Requirements Database
BONeS	-	Block Oriented Network Simulator
CDR	-	Critical Design Review
CGI	-	Common Gateway Interface
COTR	-	Contracting Officer Technical Representative
COTS	-	Commercial Off-The-Shelf
CSMS	-	Communications and System Management Segment
DAAC	-	Distributed Active Archive Center
DBI	-	Data Browser Interface
DDTS	-	Distributed Defect Tracking System
DID	-	Data Item Description
DMDB	-	Data Management Database
EBnet	-	EOS Backbone Network
ECS	-	EOSDIS Core System
EDHS	-	ECS Data Handling System
EDOS	-	EOS Data and Operations System
EGS	-	EOS Ground System
EOS	-	Earth Observing System
EOSDIS	-	Earth Observing System Data Information System
ESDIS	-	Earth Science Data and Information System
ETS	-	EOSDIS Test System
FDF	-	Flight Dynamics Facility
FOS	-	Flight Operations Segment
FTP	-	File Transfer Protocol
GOTS	-	Government Off The Shelf
GS	-	Ground System
GSFC	-	Goddard Space Flight Center
GUI	-	Graphic User Interface
HAIS	-	Hughes Automated Information Systems
HITS	-	Hughes Information Technology Systems
HTML	-	Hyper Text Markup Language
HTTP	-	Hyper Text Transport Protocol
I&T	-	Integration and Testing
IADB	-	Interface Analysis Database
ICWG	-	Interface Control Working Group
ICD	-	Interface Control Document
IIR	-	Integrated Information Repository
IR1	-	Interim Release 1
IRD	-	Interface Requirement Document
ISE	-	Integrated Support Environment
IV&V	-	Independent Verification and Validation

LAN	-	Local Area Network
M&O	-	Maintenance and Operations
N/A	-	Not Applicable
NASA	-	National Aeronautics And Space Administration
NOAA	-	National Oceanic and Atmospheric Administration
OMT	-	Object Modeling Technique
PAR	-	Performance Assurance Requirements
PDF	-	Portable Document Format
PDR	-	Program Design Review
PITS	-	Project Issue Tracking System
PS	-	Postscript
RAD	-	Rapid Application Development
RBR	-	Requirements By Release
RDBMS	-	Relational Data Base Management System
RID	-	Review Item Discrepancy
RTF	-	Rich Text Format
RTM	-	Requirements Traceability Management
SCDO	-	Science and Communications Development Office (ECS)
SCF	-	Science Computing Facility
SDPS	-	Science Data Procesing Segment
SMO	-	System Management Office
SOW	-	Statement Of Work
STD	-	Standard
StP	-	Software through Pictures
TAM	-	Technical Analysis Memorandum
TAR	-	Technical Analysis Report
TBD	-	To be determined
TBS	-	To be supplied
TIM	-	Technical Issue Memorandum
TMDB	-	Test Management Database
TRMM	-	Tropical Rainfall Measurement Mission
TXT	-	ASCII Text
V&V	-	Verification and Validation
WAN	-	Wide Area Network
WVU	-	West Virginia University
WWW	-	World Wide Web

5. GLOSSARY

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6. NOTES

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7. APPENDICES

7.1 Appendix A Open Client Installation Instructions

Installing Open Client (first time install)

- 1) Insert Disk 1 - netlib
- 2) Click on setup_10.exe (in file manager)
- 3) Click on OK (license agreement)
- 4) Click on OK (c:\sql10 is default)
- 5) Click on LAN Workplace TCP/IP then OK
- 6) host: fairmont.ivv.nasa.gov, port: 10412, then click on OK
- 7) Click on OK (SYBASE is default)
- 8) Click on Install (review information first)
- 9) Yes (modify autoexec.bat)
- 10) Click on OK (license agreement)
- 11) Click on OK (reboot)
- 12) Insert Disk 2 - cdevkit1 (C developers kit)
- 13) Click on setup_10.exe (in file manager)
- 14) Click on OK (license agreement)
- 15) Click on OK (c:\sql10 is default)
- 16) Yes (sql10 exists)
- 17) enter username of person using the PC on which install is being performed.
- 18) Yes (debuggable version)
- 19) Yes (on-line help)
- 20) Click on Install
- 21) Insert Disk 3 - cdevkit2 (C developers kit) (it asks for disk 2)
- 22) Click on OK
- 23) Yes (edit autoexec.bat)
- 24) Click on OK
- 25) Click on OK (reboot)
- 26) Edit the autoexec.bat file to include c:\sql10\bin and c:\sql10\dll in the PATH and make sure that the call of c:\sql10\bin\wsybsetup comes before invocation of windows, but after network startup.
- 27) REBOOT the machine.
- 28) Insert Disk 4 - dblib
- 29) Click on install.exe (in file manager)
- 30) hit <enter> key
- 31) enter Y, then <enter> (default is N)
- 32) hit <enter> key (default is Y)
- 33) enter 888701, then <enter>
- 34) enter A then <enter>
- 35) enter A, then <enter>
- 36) enter C, then <enter>

- 37) enter \sql10, then <enter>
- 38) enter N, then <enter>
- 39) hit <enter> key
- 40) hit <enter> key
- 41) Insert Disk 5 (SYBASE netlib)
- 42) Click on install.exe (in file manager)
- 43) hit <enter> key
- 44) enter Y, then <enter> (default is N)
- 45) hit <enter> key (default is Y)
- 46) Novell LAN Workplace TCP/IP, then<enter>
- 47) c:\windows, then <enter>
- 48) enter 892829, then <enter>
- 49) enter C, then <enter>
- 50) enter \sql10, then <enter>
- 51) enter fairmont.ivv.nasa.gov, then enter
- 52) enter 10412, then <enter>
- 53) enter N, then <enter>
- 54) enter A, then <enter>
- 55) enter Y, then <enter>
- 56) hit <enter>key
- 57) run c:\subclenv.bat
- 58) add openclnt group (in windows from program manager; File, New)
- 59) Add wisql item in openclnt group (c:\sql10\bin\wisql.exe)
- 60) Add wsybping item in openclnt group (c:\sql10\bin\wsybping,.exe)
- 61) Test by connecting to SYBASE through WISQL. For this you will need to have an account and a sample/test query to run. Contact the folks in Fairmont for this.

* If any of the above steps do not occur as shown then consult the manuals first, Fairmont folks second, and Open Client vendor third..

7.2 Appendix B SQLNet Installation Instructions

Installation of SQLNet to provide access to Oracle

1. Insert Oracle Products for Windows Version 7.0 CD into drive
2. run **d:\install\orainst.exe**
3. customer name -> **Intermetrics**
4. accept default directory for installation **c:\orawin**
5. choose Oracle Network Manager 2.1.3.0 a in left window and press install button
6. choose Oracle TCP/IP Adapter 2.0.5.0.4 and press install button
7. close Oracle Install
8. Add a program item to the Oracle program group **c:\orawin\bin\nettest.exe**
9. Double click on the Oracle Network Manager icon in the Oracle program group
10. From the NETMAN object list highlight Community and press the create button
 11. name -> **tnslsnr**
 12. protocol -> **tcp** press OK
13. From the NETMAN object list highlight Node and press the create button
 14. node -> **fairmont**
 15. type -> **unix**
 16. community -> press link button choose **tnslsnr** press OK
17. From the NETMAN object list highlight listener and press the create button
 18. name -> keep default **LISTENER**
 19. node -> keep default **fairmont.world**
 20. under databases press create button
 21. name -> **tnslsnr**
 22. SID -> **rtm**
 23. Oracle Home -> **/usr2/rtm/oracle71.sol/** press OK
 24. under addresses press create button
 25. host -> **129.165.50.200**
 26. port -> **1580** press OK button
 27. press OK button
28. From main menu in Oracle Network Manager choose **File Save**
29. when filter dialog box appears click OK
30. **c:\orawin\network**
31. From main menu in Oracle Network Manager choose **File Validate**
32. From main menu in Oracle Network Manager choose **File Generate**
 33. Export Network Definition dialog box choose OK
 34. **c:\orawin\network\admin** press OK button
35. Close Oracle Network Manager
36. Using File manager copy all files in **c:\orawin\network\admin\rtm\fairmont** to **c:\orawin\network\admin**

To test installation using nettest icon in Oracle program group

Obtain a current project name and password from the RTM Administrator.

User ID: **project name**

Password: **project password**

connect string: **tnslsr**